



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/678,720

10/03/2003

Robert C. Lam

01168/DKT00076

6119

43315

7590

08/12/2008

EMCH, SCHAEFFER, SCHAUB & PORCELLO, CO., L.P.A.

P.O. BOX 916

TOLEDO, OH 43697-0916

EXAMINER

STEELE, JENNIFER A

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

08/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/678,720

Applicant(s)

LAM, ROBERT C.

Examiner

JENNIFER STEELE

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-9, 12, 13 and 29 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 6-9, 12, 13 and 29 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claim 6-9, 12-13 and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Lam (EP 1203897) in view of Lam (EP 0971151) in further view of Smith (US 5,965,658). The previous Office Action of 3/18/2008 is maintained and presented below.

Lam '897 teaches a fiction material having fibrous base impregnated with a curable resin wherein the fibrous base material comprising a porous primary layer and one secondary layer. The friction material is comprised of 10-50% of less fibrillated aramid fiber, 10-35% carbon particles, 5-20% cotton fibers, 2-15% carbon fibers and 10-35% filler material (claim 12). The Canadian Standard Freeness (CSF) index of the aramid fibers is at least 300 (claim 6). Lam '897 teaches a porous primary layer and friction modifying particles covering 3-90% of the primary layer surface area (claim 1).

Lam '897 teaches friction modifying particles that include silica particles, phenolic resins, silicone resins, epoxy resins and mixtures thereof; fully carbonized carbon powder or particles or partially carbonized powder or particles and mixtures thereof; (claim 5). Lam '897 teaches friction modifying particles in the secondary layer including carbon particles, aramid fibers coated with carbon particles, carbon particles and a retention aid where the friction material must be resilient or elastic yet resistant to compression set, abrasion and stress, have high heat resistance and be able to dissipate heat quickly (pg 4, lines 10-13). Lam '897 further teaches fibrillated fibers and carbon fibers that provide a friction material with improved anti-shudder characteristics, high thermal conductivity, porosity strength, and noise resistance (pg 6 lines 5-15). Lam '897 teaches carbon fibers provide friction material with good heat conduction such that the friction material has desired heat resistance (pg 4, lines 10-13). Lam '897 teaches carbon fibers in the primary layer but differs and does not teach carbon fibers in the secondary layer and Lam '897 does not teach the carbon fibers are partially carbonized carbon fibers that are 65-90% carbonized.

Lam '151 teaches a two-ply fibrous base material for use in friction material comprising a secondary layer bonded to a primary layer (claim 1). Lam '151 teaches the secondary layer comprises high temperature resistant, high strength fibers such as aramid fibers, carbon fibers, cotton or other cellulose fibers, fillers and/or novoloid fibers and in certain embodiments, carbon particles and/or graphite particles [0018]. Lam '151 teaches the primary layer and secondary layer can comprise the same or different compositions and can both comprise one or more types of fibers, fillers and friction

particles [0041]. Lam '151 teaches carbon fibers are useful in the secondary layer and can be present at a range of 5-30% as a percent of the secondary layer [0044].

Smith teaches a non-asbestos friction material and method of making (ABST). Smith teaches carbon fibers and aramid fibers are preferred over asbestos as fiber materials because the carbon and aramid fibers have superior anti-fade properties that provide benefits for friction material applications (col. 2, lines 10-14). Smith teaches carbon fibers and the disadvantages of carbon fibers (col. 2, lines 58-64). Smith teaches the advantages of using carbonaceous fibers in a friction material as an improvement and replacement for carbon fibers. Smith teaches a brake pad comprising 2 to 20% carbonaceous fibers (claim 1). Smith teaches carbonaceous fibers that are 65-80% carbon (ABST). Carbonaceous fibers are equated with partially carbonized fibers.

It further would have been obvious to one of ordinary skill in the art at the time the invention was made to employ carbon fibers in the secondary layer as of Lam '897 motivated to improve the properties of the friction material as taught by Lam '151. It further would have been obvious to one of ordinary skill in the art to employ partially carbonized fibers of Smith as a substitute of the friction fibers and particles of Lam, motivated to improve the properties of the friction material.

As to claim 7 Lam '897 teaches a less fibrillated aramid fibers of about 430 to 650 on Canadian Standard Freeness index in claim 1.

As to claim 8, Lam '897 teaches a less fibrillated aramid fibers of average fiber lengths in the range of 0.5 to 10 mm in claim 19.

As to claim 9, Lam '897 teaches a filler of diatomaceous earth in claim 20.

As to claim 12, Lam '897 teaches a friction material is comprised of 10-50% of less fibrillated aramid fiber, 10-35% carbon particles, 5-20% cotton fibers, 2-15% carbon fibers and 10-35% filler material in claim 21.

As to claim 13, Lam '897 teaches a friction material is comprised of 38 to 40% of less fibrillated aramid fiber, 13-15% carbon particles, 10-12% cotton fibers, 4-6% carbon fibers and 28-30% filler material in claim 22.

As to claim 29, Lam '897 teaches carbon fibers in the primary layer. Smith teaches partially carbonized fibers are an improvement and can be substituted for carbon fibers. Smith teaches employing partially carbonized fibers at 2-20% of the friction material. Smith teaches the partially carbonized fibers are 65-80% carbonized. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ partially carbonized fibers in the primary layer.

Terminal Disclaimer

2. *The terminal disclaimer filed on 11/07/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/666,090 has been reviewed and is accepted. The terminal disclaimer has been recorded.*

3. *The terminal disclaimer filed on 11/07/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/678,598 has been reviewed and is accepted. The terminal disclaimer has been recorded.*

4. *The terminal disclaimer filed on 11/07/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 6,182,804 has been reviewed and is accepted. The terminal disclaimer has been recorded.*

5. *The terminal disclaimer filed on 5/17/2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application No. 10/678,599 has been reviewed and is accepted. The terminal disclaimer has been recorded.*

Response to Arguments

6. Applicant's arguments filed 5/28/2008 have been fully considered but they are not persuasive. Applicant argues the references separately and states that nowhere in Lam '897 does the reference disclose that the secondary layer can comprise carbon fibers, partially carbonized carbon fibers, a composition of 5-35% partially carbonized carbon fibers and partially carbonized carbon fibers that are 65-90% carbonized. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir.1986). As the previous Office Action 35 USC 103(a) presented, the reference to Smith taught that it is known in the art to employ partially carbonized carbon fibers in a friction material. Lam '897 reference teaches a friction material wherein the primary layer comprises carbon

Art Unit: 1794

fibers and carbon particles as well as other friction materials such as silica particles and aramid fibers and cotton fibers, and Lam '897 teaches a secondary layer that can comprise carbon particles or silica particles. Both Smith and Lam teach that carbon fibers can be used in compositions for friction materials. As the current application is claiming a two layer structured friction material, so does Lam '897. As the current application is claiming carbon fibers as a friction material, so do Lam '897 and Smith. As the current application is claiming carbon fibers in the secondary layer, Lam '897 teaches friction modifying particles that can be carbon particles, silica particles and does not disclose friction modifying particles in the secondary layer that are carbon fibers. However both Lam '897 and Smith are teaching that carbon fibers, partially carbonized carbon fibers, and partially carbonized carbon fibers that are 65-90% carbonized are friction materials. Lam '897 teaches a composition wherein the friction material would be 0.2-20% of the secondary layer and Smith teaches a composition where the carbon fiber would be present at a composition of 2-20%. Therefore the combination of Lam and Smith present findings that one of ordinary skill in the art could have substituted the carbon fibers for the carbon particles and the results of the combination would have been predictable. If the results are unexpected, Applicant has the burden of providing evidence that the results are unexpected.

7. Applicant's argue that the "common sense" test of KSR and "teaching, suggestion, motivation" would not teach what is claimed. With respect to Applicant's arguments that there is no suggestion of motivation to combine, the rationale to modify or combine the prior art does not have to be expressly stated in the prior art; the

Art Unit: 1794

rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As Lam '897 and Smith teach that carbon fibers are useful in friction materials and Smith teaches a composition in the range of Applicant and Lam teaches a secondary layer that contain friction materials, Lam and Smith present findings that one of ordinary skill in the art could of substituted the carbon particles of Lam with the partially carbonized fibers of Smith and the results of the combination would have a reasonable expectation of success in producing a friction material.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

8/6/2008